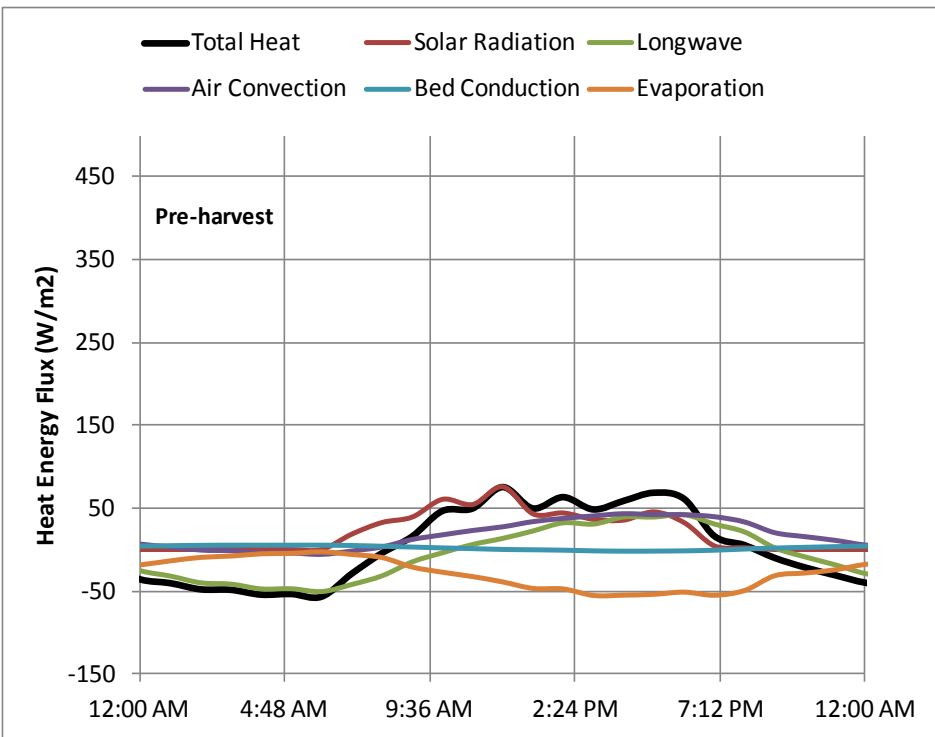


# Water Quality Program

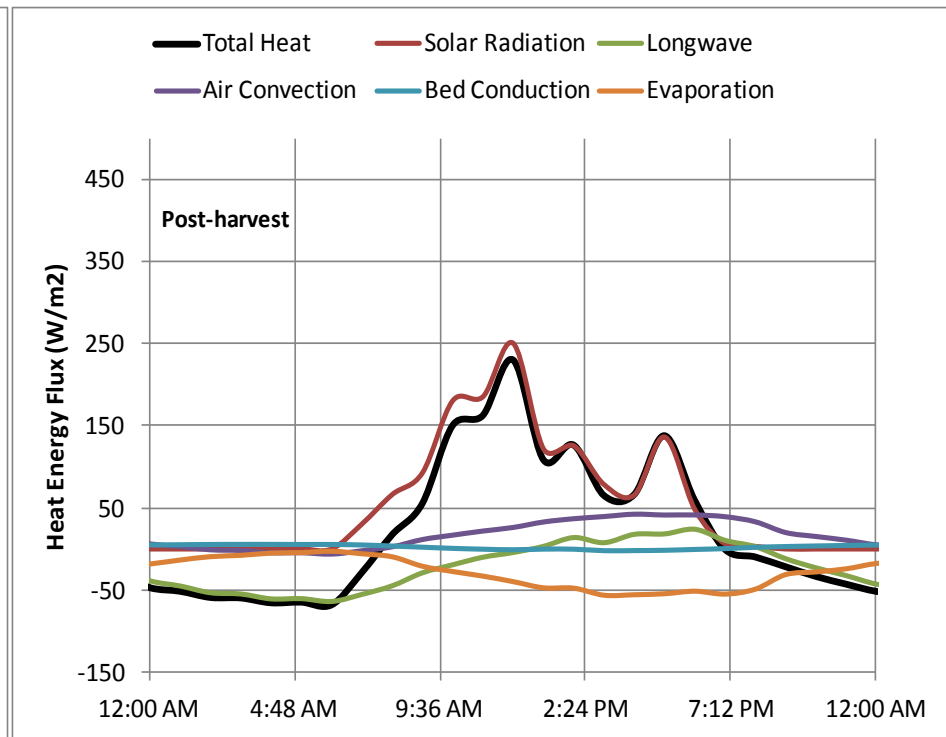
## Figures for Oregon Forest Industry Council's Questions/Concerns Re: Protecting Cold Water Criterion

June 19<sup>th</sup>, 2014

# Figure 1: Energy Fluxes @ RipStream Site 5556

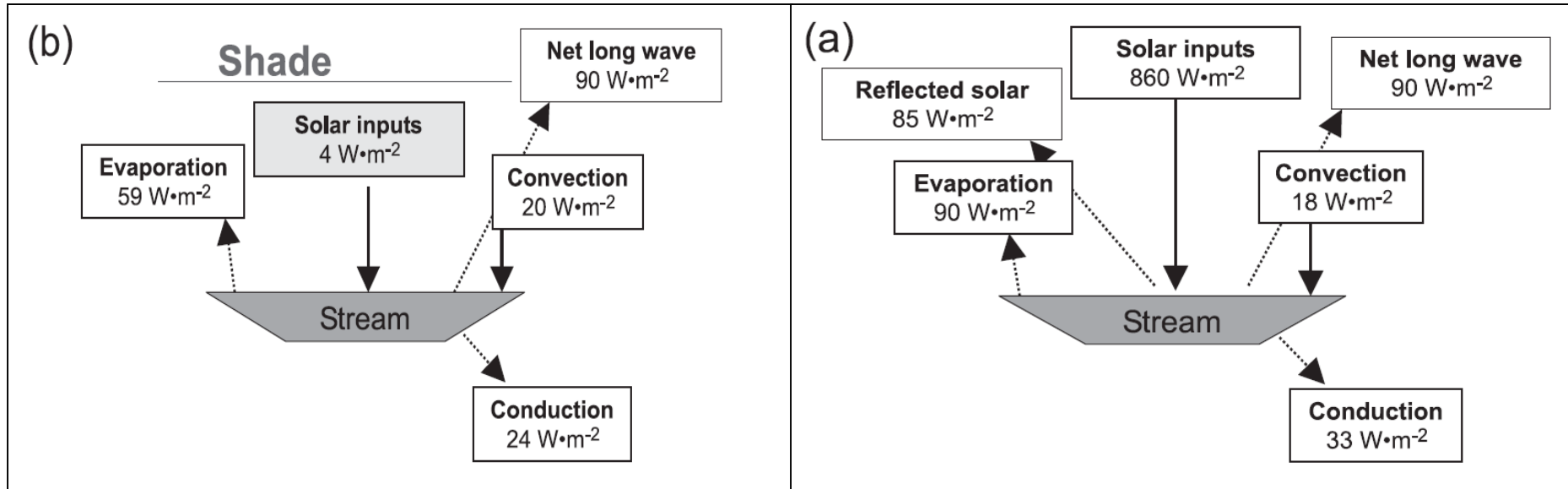


Modeled heat energy fluxes **pre harvest** at stream km 1.25 in the treatment reach on July 31, 2003.



Modeled heat energy fluxes **post harvest** at stream km 1.25 in the treatment reach on July 31, 2003.

# Figure 2: Field Measured Energy Fluxes

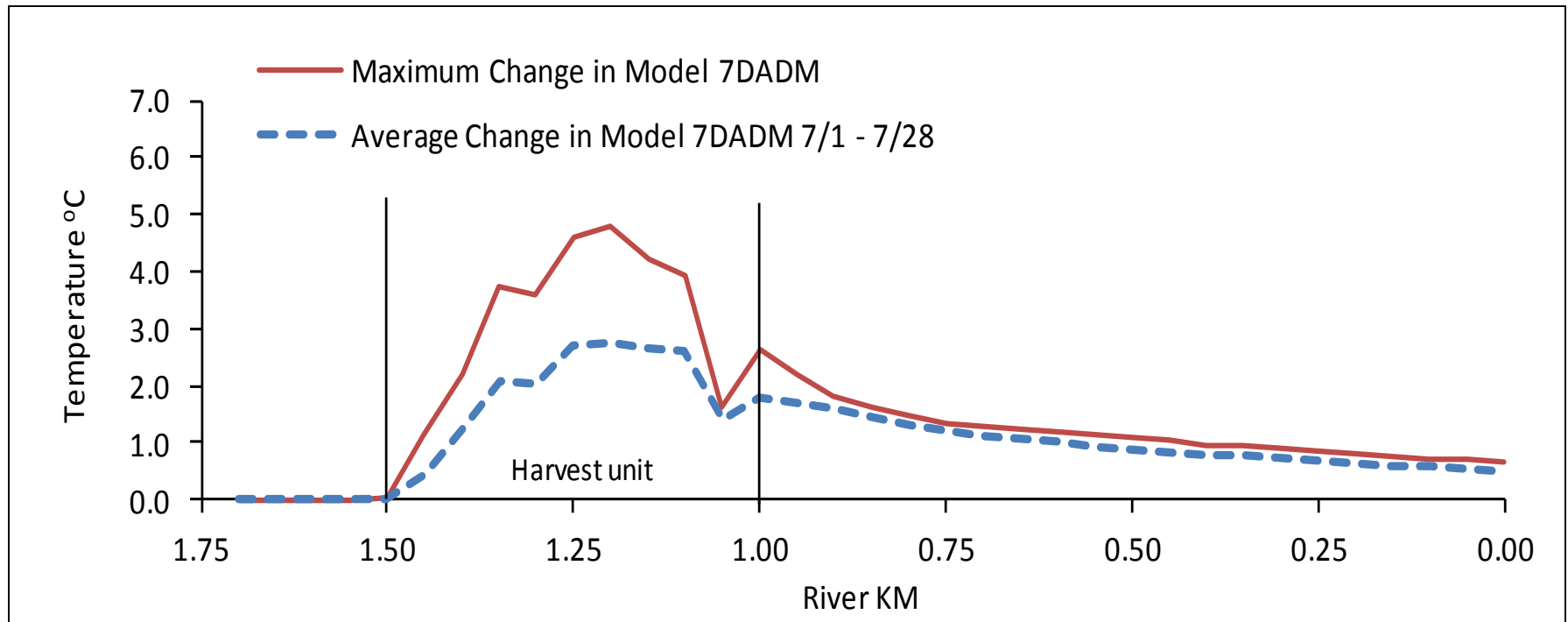


Thermal energy fluxes at noon on July 20, 1997 on a **fully shaded** study stream in the H.J. Andrews Experimental Forest. **Thermal energy lost is  $-149 \text{ W}\cdot\text{m}^{-2}$ .**

Thermal energy fluxes at noon on July 20, 1997 on an **unshaded** study stream in the H.J. Andrews Experimental Forest. **Thermal energy gained is  $580 \text{ W}\cdot\text{m}^{-2}$ .**

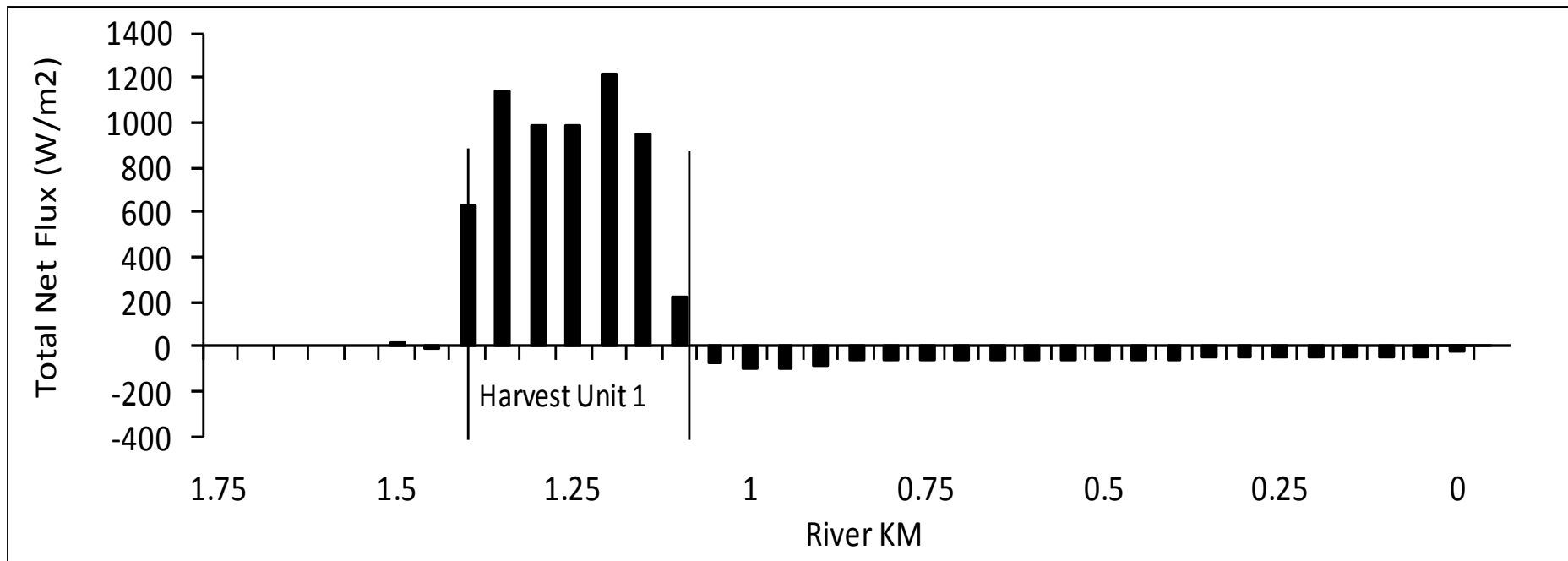
Johnson 2004

# Figure 3: Heat Source Results for Argue Creek



Simulated change in longitudinal 7-day average daily maximum (7DADM) temperatures from harvest at RipStream site 7854, holding all factors constant except vegetation.

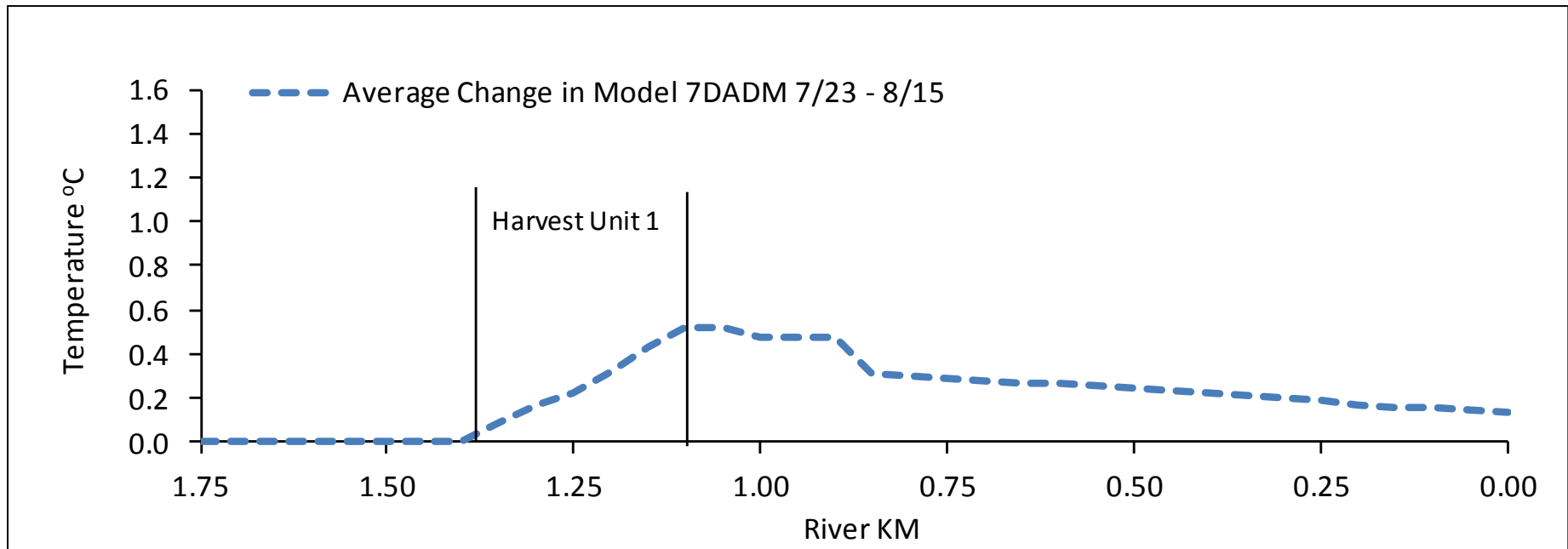
## Figure 4: Heat Source Results for Drift Creek Trib



Simulated change in longitudinal net energy fluxes from harvest at RipStream site 5556, holding all factors constant except vegetation.

Results only include effect of the Harvest Unit 1 in RipStream study area.

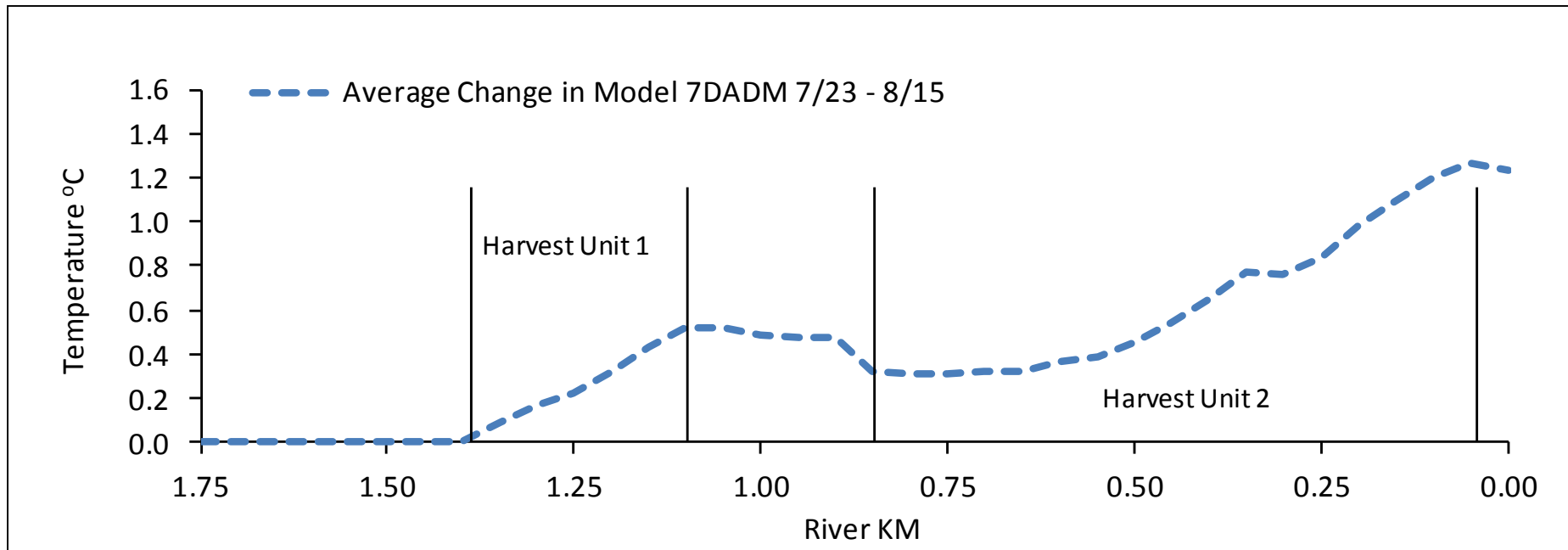
## Figure 5: Heat Source Results for Drift Creek Trib



Simulated change in longitudinal 7-day average daily maximum (7DADM) temperatures from harvest at RipStream site 5556, holding all factors constant except vegetation.

Results only include effect of the Harvest Unit 1 in RipStream study area.

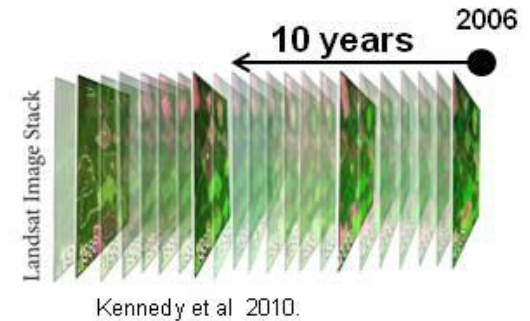
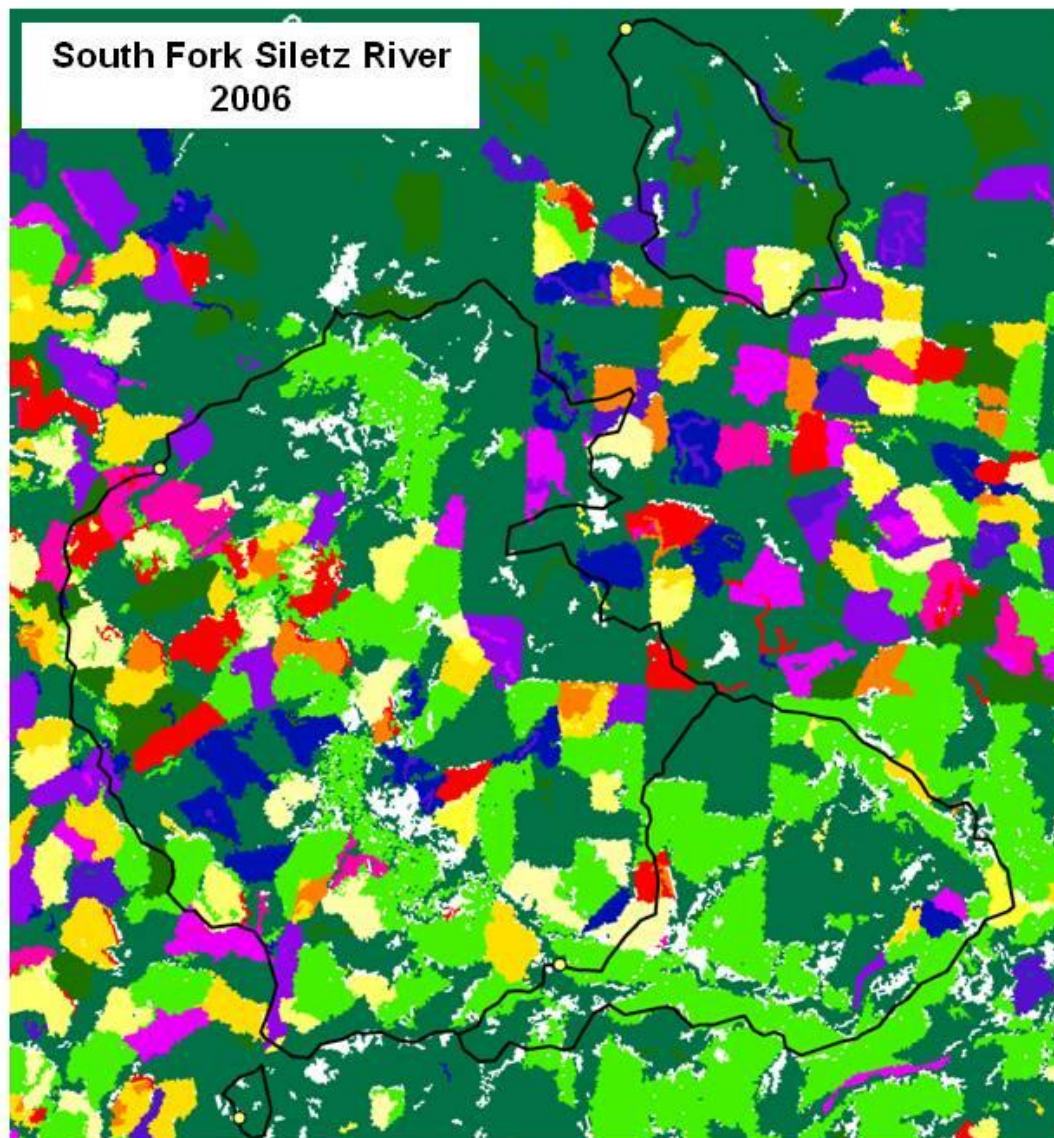
## Figure 6: Heat Source Results for Drift Creek Trib



Simulated change in longitudinal 7-day average daily maximum (7DADM) temperatures from harvest at RipStream site 5556, holding all factors constant except vegetation.

Results include effects from the harvest unit in RipStream study area (Harvest Unit 1) and a second harvest unit downstream of the study area (Harvest Unit 2).

# Figure 7: Change Detection Analysis



**Percent area disturbed  
in 2006 = 17%**

Includes any harvest 10 years  
prior from 1996-2006.

Color = harvested  
1996 - 2006

White = Non forested  
(Ag/Rural residential,  
meadow)

Dark Green = not harvested  
1985 - 2006.

Light Green = harvested  
1985-1996. (Not counted in  
total)

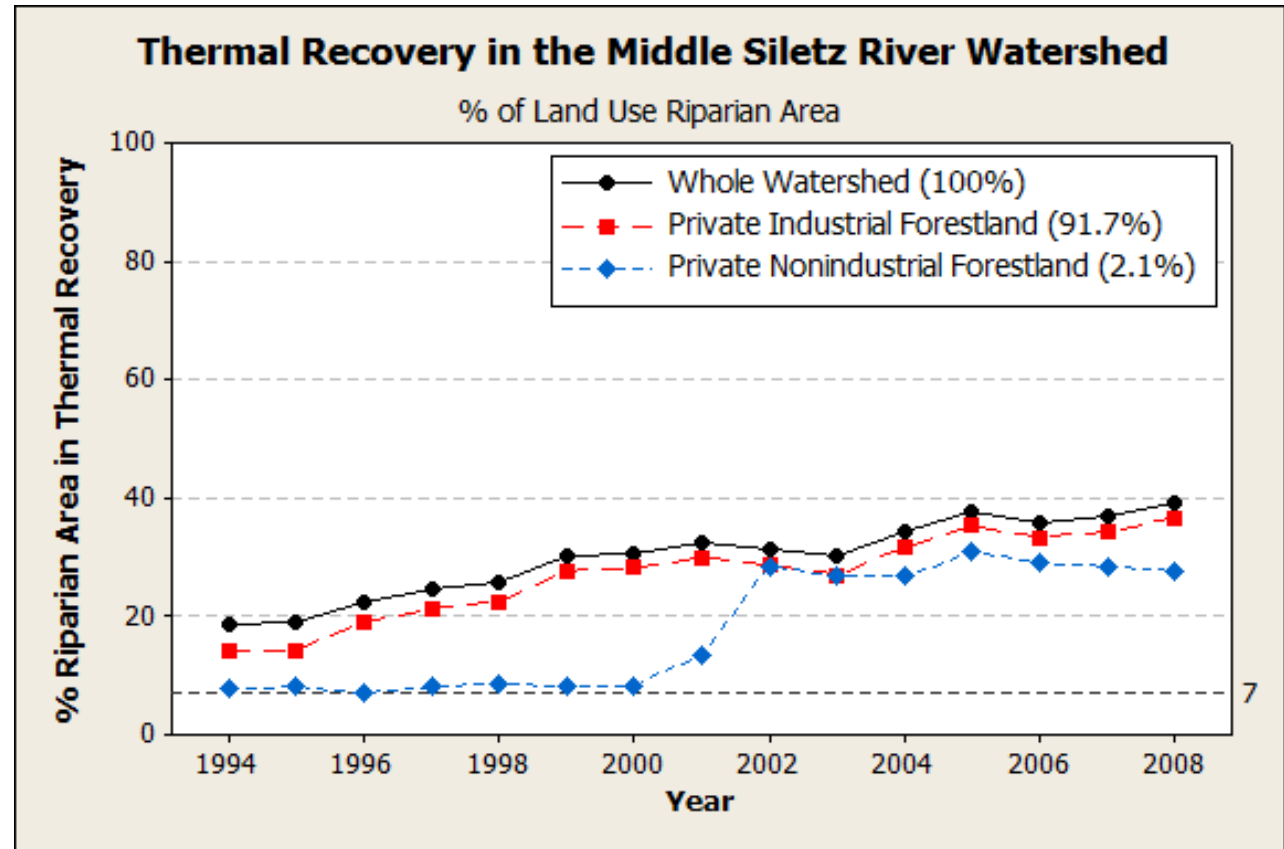


# Figure 8: Thermal Recovery in Middle Siletz River

Percent of riparian area in thermal recovery ( $\leq 10$  years post-disturbance) **as a percentage of the land use in question.**

Percentages in the legend are the amount of the total watershed area in that land use.

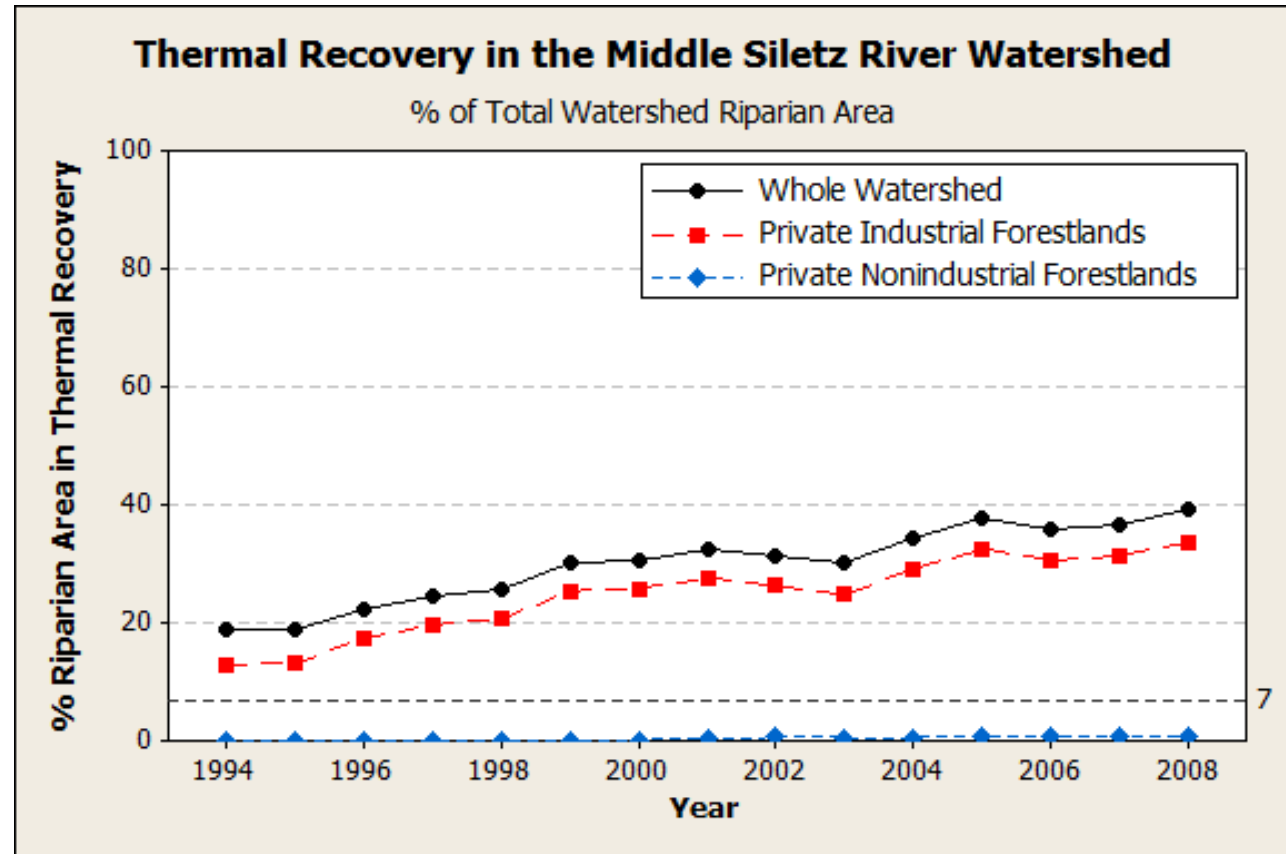
Riparian areas are land within 100ft of streams.



# Figure 9: Thermal Recovery in Middle Siletz River

Percent of riparian area in thermal recovery ( $\leq 10$  years post-disturbance) as a percentage of the total watershed riparian area.

Riparian areas are land within 100ft of streams.

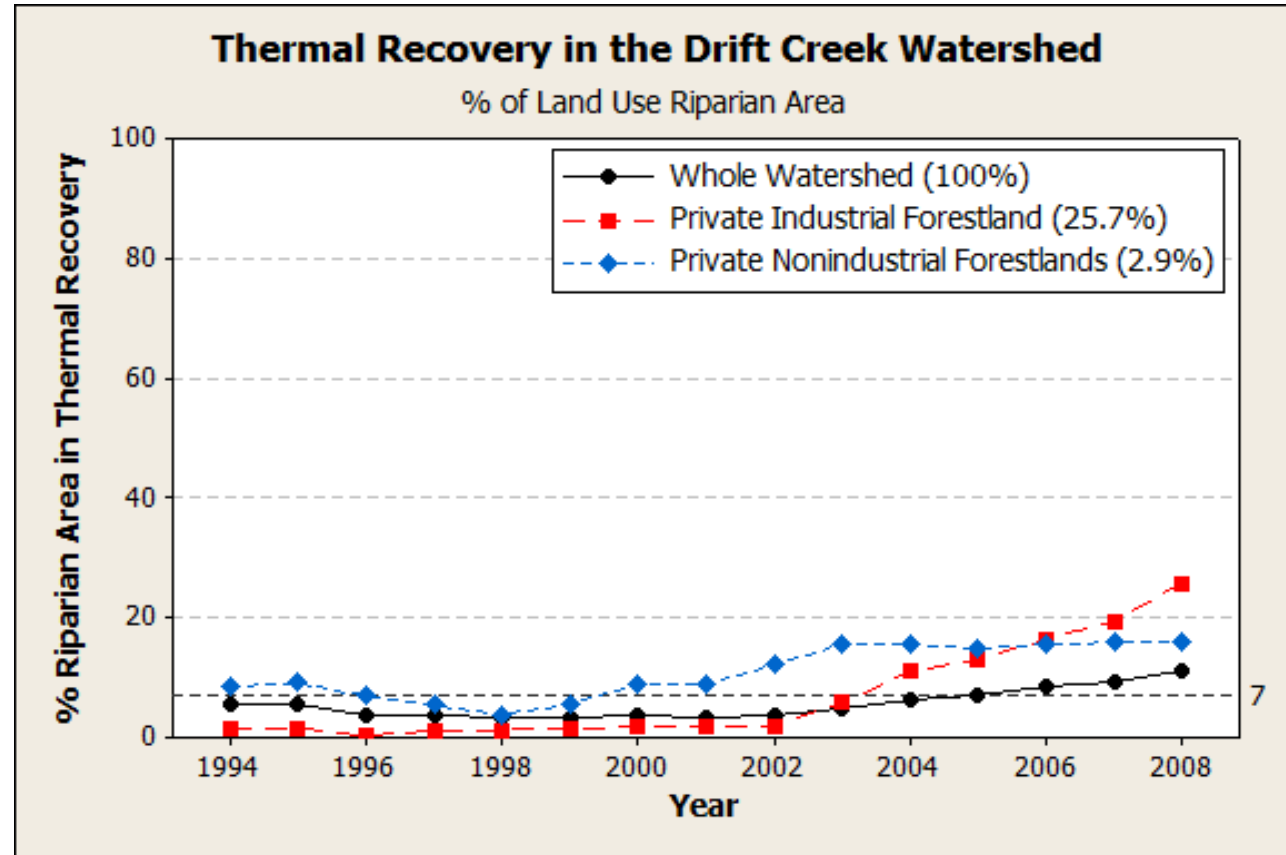


# Figure 10: Thermal Recovery in Drift Creek

Percent of riparian area in thermal recovery ( $\leq 10$  years post-disturbance) **as a percentage of the land use in question.**

Percentages in the legend are the amount of the total watershed area in that land use.

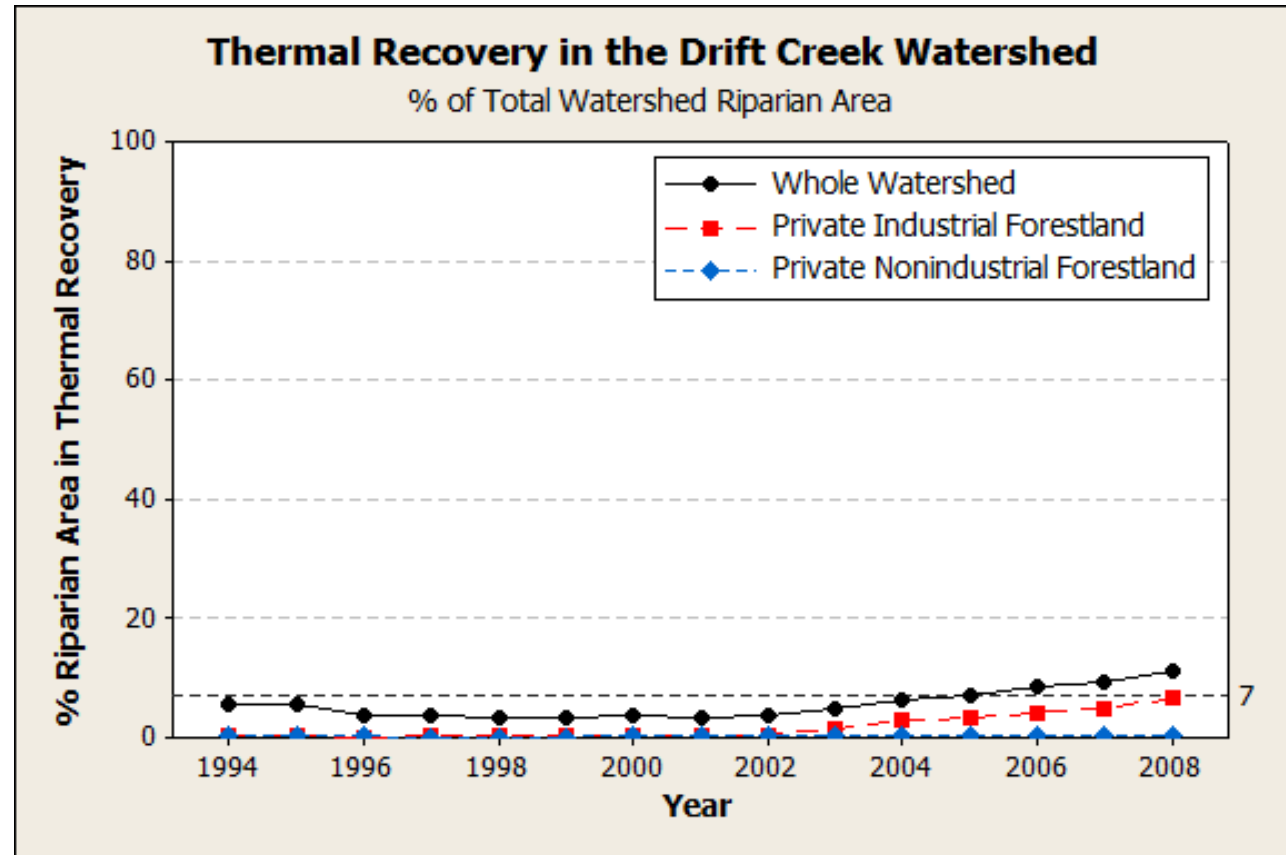
Riparian areas are land within 100ft of streams.



# Figure 11: Thermal Recovery in Drift Creek

Percent of riparian area in thermal recovery ( $\leq 10$  years post-disturbance) **as a percentage of the total watershed riparian area**.

Riparian areas are land within 100ft of streams.

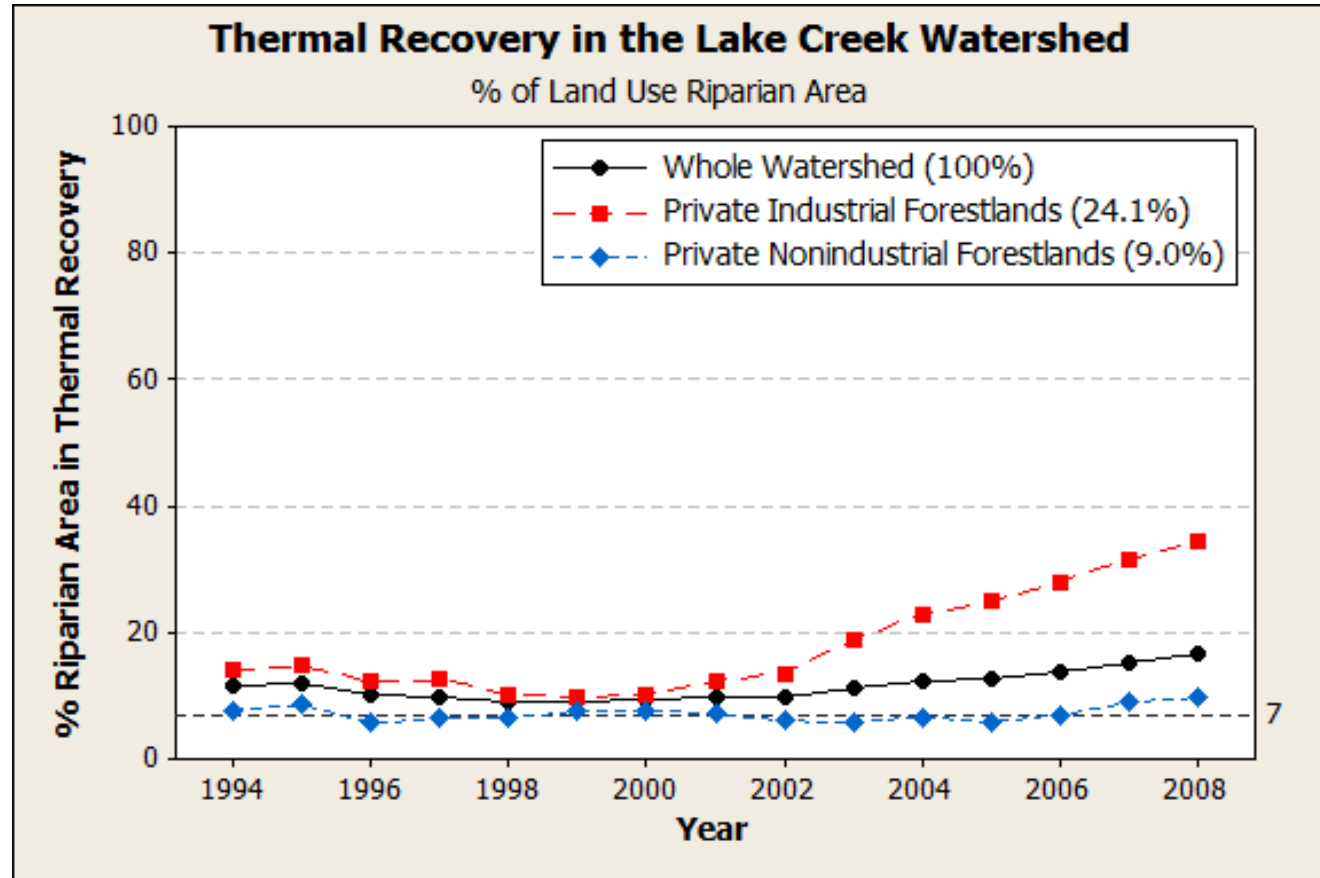


# Figure 12: Thermal Recovery in Lake Creek

Percent of riparian area in thermal recovery ( $\leq 10$  years post-disturbance) **as a percentage of the land use in question.**

Percentages in the legend are the amount of the total watershed area in that land use.

Riparian areas are land within 100ft of streams.



# Figure 13: Thermal Recovery in Lake Creek

Percent of riparian area in thermal recovery ( $\leq 10$  years post-disturbance) **as a percentage of the total watershed riparian area**.

Riparian areas are land within 100ft of streams.

